

Data in Our World

Reporting Category Probability and Statistics

Topic Investigating forms of data collection

Materials

- 8 x 10 inch cardboard
- Clothespins
- Recording sheets
- Pencils
- Graphing sheets
- Crayons or markers

Vocabulary

more, less, fewer, greater than, less than, equal to, data, survey, picture graph, tally, chart, object graph, table, interpret

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Perform this activity only after students have had many experiences with teacher-developed surveys.

1. Review with students how to develop a data graph by first coming up with an appropriate survey question. Brainstorm with students various ideas for survey questions.
2. Once students have decided upon their individual survey questions, provide each student with a “clipboard” (an 8 x 10 inch piece of cardboard with recording sheet attached by a clothespin). Assist students in writing his/her survey question in the appropriate space.
3. Review with students the procedures for conducting a survey. For example, if surveying office or cafeteria staff or students in other classrooms, students must follow appropriate rules and procedures regarding behavior, time allowances, etc. Show them how to note response data on the recording sheet, using tally marks.
4. Have students conduct their survey. Once the survey time is up and they have returned to their seats (or classroom), have them describe the results by completing a representational graph to be shared with the class. Encourage mathematical communication by assisting students in using words such as *more, less, fewer, greater than, less than, and equal to*. Provide a sentence frame to help students organize their thoughts.

Assessment

- **Questions**

- “Why do we collect data? What are some times we have collected and used data in our classroom?”
- “What were the results of your survey? Was there anything surprising about your results? Can you write a number sentence, using data from your graph?”
- “How can you create a word problem for another person to solve, using the data on your graph?”

- **Journal/Writing Prompts**

- “Write your survey question. Describe your data collection by telling how many people you surveyed and how you kept track of your data. Describe what you did with the data you collected—how you organized it.”
- “Draw a picture graph that shows the results of your survey. Write about the results of your survey, using at least three of these words: *more, less, fewer, greater than, less than, equal to*.

- **Other**

- Have students exchange graphs and describe the results shown, using the targeted vocabulary.
- Have students survey family members and create a graph to represent their data. Students could share their survey results with their classmates during math talks.
- Bring in examples of graphs from newspapers or magazines to share and discuss so students can see how graphs are used in our everyday world.
- Use programs on the Internet that allow students to create tables, object graphs, and picture graphs.

Extensions and Connections (for all students)

- Have students use linking cubes to construct their own classroom object graph each day to represent the number of students bringing lunch and the number buying lunch. Students could also construct a daily attendance graph of the number of students present and the number absent. Interpret and discuss the data during morning circle/calendar time.
- Graphing the daily weather and/or temperature allows a natural connection to science.

Strategies for Differentiation

- Pair students to support one another in the collection and representation of data. Give students a choice on how they would like to represent their data (table, object graph, or picture graph).
- Include on a math word wall the words and pictures of a table, picture graph, and object graph.